

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, PAKEFIELD ROAD, LOWESTOFT, SUFFOLK, NR33 OHT

1991 RESEARCH VESSEL PROGRAMME

REPORT: RV CORYSTES: CRUISE 7A

STAFF: P J Dare (SIC)
D Key
D Palmer
P Walker
C Darby
R Flatt
G Lees (AEP 2, 5-9 July)

DURATION: 5-21 July

LOCALITY: English Channel (E&W)

AIMS:

1. To obtain stock indices of abundance for pre-recruit and fishable scallops on the Fowey-Eddystone survey grid, using dredges and u/w cameras.
2. To carry out comparative dredging trials with a chartered scalloper off Fowey.
3. To collect biological samples for growth, age, spawning and meat yield studies from:
(a) the Cornish fishery (extending south towards Hurd Deep and SW of the Scillies);
(b) Lyme Bay; (c) eastern Channel.
4. To assess the further recovery of scallop and benthos populations, and of substrates, on the plot dredged intensively by DFR in 1989 off Fowey.
5. To sample the benthos at Shingle Bank, eastern Channel, for AEP2 studies on gravel extraction impacts.

NARRATIVE:

CORYSTES departed Lowestoft at 1300 GMT on 5 July and proceeded to Shingle Bank, off Hastings (area 'A' on track chart) where benthos sampling was conducted on 6 July for AEP2 studies (Aim 5). Next day, further samples were collected from a prospective gravel extraction site off Shoreham (B), after which scallops were sampled near the "Greenwich" Buoy (C). CORYSTES then steamed overnight to Lyme Bay.

On 8 July, in Lyme Bay, the Scruff fishing ground (D) was dredged for scallop samples before G Lees was put ashore at Brixham in late afternoon. CORYSTES then steamed overnight to the Fowey-Eddystone fishery area (E). There, during 9-14 July, 3 days were devoted to carrying out successfully the comparative fishing trials with the chartered 50 ft Plymouth scalloper, FV NAURU (Aim 2). This work entailed transferring 3 shifts of scientists to and from the charter vessel, sometimes in the shelter of Looe Bay and Great Mewstone, Plymouth, during

fresh westerly and SE winds, respectively. On 12 July, CORYSTES was forced to dodge during SW winds and swells too strong for safe handling of scallop dredges. By 14 July, however, the pre-recruit survey (Aim 1) had also been accomplished plus further biological sampling (Aim 3). The re-assessment of scallop stock and benthos on the DFR plot off Fowey (Aim 4) was carried out on 14 July, before CORYSTES steamed overnight for the Wolf Rock area.

The Wolf Rock fishing ground (F) was examined on 15 July, though CORYSTES had to dodge all morning in a strong westerly with an increasing swell. Conditions eased later, enabling dredging to be undertaken before CORYSTES steamed overnight south-westwards to begin exploratory surveys between the Isles of Scilly and the Shelf Edge. On 16-17 July, a lull in weather and sea state allowed us to collect biological samples and hydrographic information from 4 deep-water scallop sites where CIROLANA had found scallop traces in the Portuguese trawl in 1989-91, namely: Haddock Bank, SE of Haddock Bank, SW of Melville Knoll, and Little Sole ground (areas G-J). CORYSTES then returned overnight, and in deteriorating weather, to south of the Scillies to begin the final survey phase.

From 18-20 July, CORYSTES worked a series of dredge stations - some close to the French EEZ - eastwards from the Channel entrance (K) to the north side of Hurd Deep (L), then back westwards towards The Lizard. Trials with an experimental dredge for harvesting offshore clams were also carried out during this period.

With all targets achieved, despite often marginal conditions, CORYSTES arrived off Falmouth on 21 July at 08.30, to change some scientific staff for 7B.

RESULTS:

Aim 1. Scallop Stock Surveys

a. Fowey-Eddystone ground: 37 dredge tows (each of 15 mins) were made inside our standard 12 x 5 nM survey area. Fishable stocks remain very low (following heavy exploitation in 1988-90) but pre-recruits were encouragingly numerous. One particular area (>4 nM²) held high densities of 2, 3 and 4 year-old juveniles, and provided our record catch of 272 scallops in one tow with 4 fine-mesh dredges. Video observations, however, did not reveal any obvious substrate features to explain the location of this patch.

b. Wolf Rock ground: 8 of the 12 best 1990 stations were resampled; fishable stocks were low and, as last year, pre-recruits were scarce.

c. Western Approaches: Small numbers of scallops were taken in all 19 tows on the 4 grounds investigated in ICES sub-rectangles 27E2, 27E1 and 26E1. The deepest were at 170-175m on the Shelf Edge at Little Sole ground.

d. Lyme Bay: the 12 tows in a 4 x 7.5 nM box on the Scruff fishing ground yielded very low catch rates of fishable scallops and few pre-recruits.

e. Mid-Channel (VIIe): Scallops occurred, though usually at low densities, at all 23 stations from south of the Scilly Isles (6°30'W) up Channel to the north side of Hurd Deep (3°15'W) - including stations close to the French EEZ. Pre-recruits were scarce everywhere.

f. Eastern Channel (VIId): the 6 stations worked SE of the "Greenwich" Buoy failed to locate the high density patch of juvenile scallops reported (as 2 year-olds) by the IFREMER survey in July 1990.

Aim 2. Comparative Fishing Trial

Both vessels used commercial Newhaven dredges over the grid of 28 fixed, (¼ hour) tows on the Fowey-Eddystone ground, as last year. Preliminary data analysis suggests that CORYSTES' catch rates averaged 45% lower than those of FV NAURU.

Aim 3. Biological Sampling

Shell collections were made (for age and growth determination) from all grounds. Whole animals from the Hurd Deep fishery were frozen for biometric studies. Spawning was underway everywhere, at bottom temperatures (CTD) between 12.7°C in eastern Channel and 10.4°C at Haddock Bank. Gonad samples were preserved for the collaborative-study with Caen University.

Aim 4. Intensively dredged plot

The 0.2nM² plot that had been fished heavily in 1989 was re-examined using cameras and 4 dredge tows; no differences in substrate and benthos between the dredged plot and its immediate surroundings were immediately discernible.

Aim 5. Benthos Sampling, AEP2

At Shingle Bank, samples were preserved from 15 anchor dredge and 3 scallop dredge tows, while 2x1 hr camera sledge tows provided video and 35 mm photographic data. Off Shoreham, 12 anchor dredge stations were worked. Benthos at both sites seemed to be impoverished even in the unexploited locations.

Photographic/TV cameras sledge.

Five deployments were made successfully, including the deepest yet attempted - at 130 m near Haddock Bank; 7 hours of video were recorded and ~ 800 m² of seabed photographed.

Other Sampling.

(i) Hydrographic - 8 CTD profiles were obtained from the main grounds (ref. spawning studies) and 3 bottom-water samples were collected from the Western Approaches for oxygen isotope analysis (growth/age studies).

(ii) Crabs - 80 Cancer pagurus were caught and measured, of which 65 undamaged specimens were frozen for maturity studies (FSM3).

(iii) Otoliths - 91 fish of 13 commercial species were measured; otoliths were taken from 34 fish of 5 species (FSM2).

(iv) AEP2 - two batches of 20 scallops, from E & W Channel, were frozen for contaminants analysis (A Franklin).

P J Dare
(20 September 1991)

SEEN IN DRAFT: Master MJW

Fishing Skipper WMM

INITIALLED: GPA

DISTRIBUTION:

Basic List +

P J Dare

D Key

D Palmer

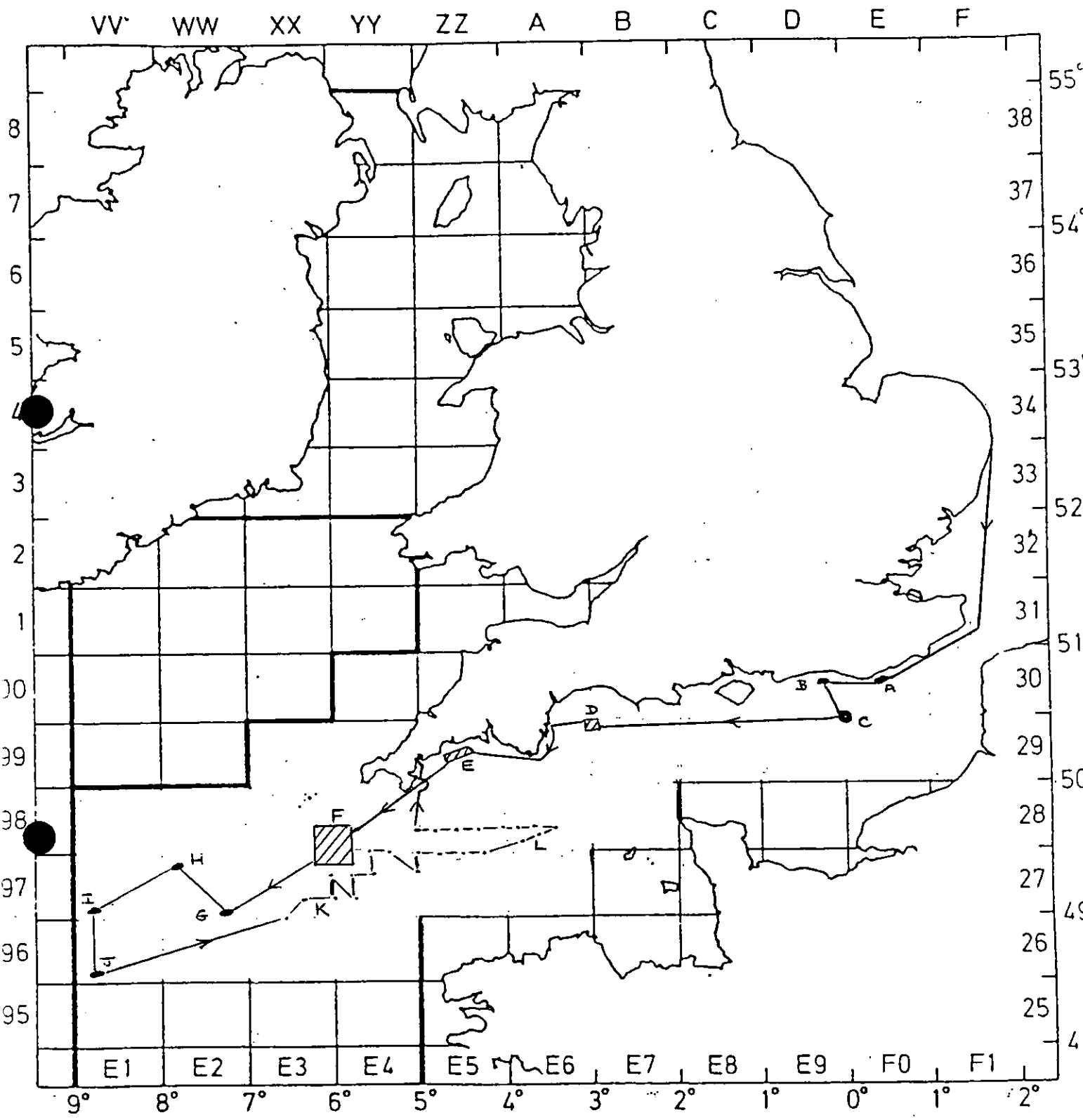
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Sea Fisheries Committees - Devon
- Cornwall
- Isles of Scilly
- Southern



Corystes 7A/91 Track chart